

MAXWELL JONES

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I'm a Artificial intelligence and math double major at Carnegie Mellon University, graduating in 2023. I'm interested in AI/ML as well as software engineering.

Skills

PROGRAMMING LANGUAGES

Python
Java
C
JavaScript
HTML / CSS
LaTeX
SQL
Julia

TOOLS/Frameworks

NumPy
Pytorch
SciPy
Unix Command Line
Git
Sklern
Keras
Pandas
Jupyter Notebook
regex
Matplotlib

COURSEWORK

15-485 Intro to Deep Learning
16-385 Computer Vision
10-703 Deep Reinforcement Learning
10-725 Convex Optimization
10-315 Intro to Machine Learning
15-281 Artificial Intelligence
15-210 Parallel Algorithms
15-213 Computer Systems
21-484 Graph Theory
15-251 Theoretical Computer Science

HOBBIES/INVOLVEMENT

Origami
Chess
Basketball
Kappa Sigma Fraternity
NSBE (National Society of Black Engineers)

Education

Carnegie Mellon University BS Mathematics 2023 BS Artificial Intelligence 2023 GPA: 4.0/4.0	Sept. 2019 to Current
Thomas Jefferson High School for Science and Technology High School Diploma 2019 GPA: 4.1/5.0	Sept. 2015 to May 2019

Employment

Meta FAIR Labs Software Engineer/Machine Learning Intern	May 2022 to Current
<ul style="list-style-type: none">Working on paper to systematically benchmark algorithmic Bias Amplification of models from biased datasets with different levels of biasMeasuring how the affects of a a specific feature in an image(ex: grass versus snow) may affect classification of an object(ex: dog versus wolf)Using ResNet-18 using ClassyVision and Pytorch to benchmark bias for controlled subsets of The Visual Genome datasetSpecifically, creating custom biased datasets, running experiments, and Cleaning Data for Image ClassificationWrote Scripts to run Custom Config Files using both Bash and Python for large scale hyperparameter testing/analysisLead Team Meetings every week with respect to the project, specifically peers and co-authors on Computer Vision FAIR team	
Meta Probability and Uncertainty Software Engineer Intern	Remote May 2021 to Aug. 2021
<ul style="list-style-type: none">Developed a data perturbation training/evaluating/testing pipeline in Python for the Probability: Uncertainty team, leveraging Pytorch for main testingTested on probabilistic models including Bayesian, Ensemble, and Dropout focused networks modeled off of LeNet-5 for performanceMeasured how well these probabilistic models performed on perturbed image data(Random Cropping, Rotation, Jittering) w.r.t non-probabilistic modelsCreated visualizations using Matplotlib for presentationSpecifically focused on MNIST and FashionMNIST datasets, comparing different model architectures	

Carnegie Mellon University (Head) Teaching Assistant	Fall 2020 to Current
<ul style="list-style-type: none">Teaching Assistant for 15-251 Theoretical Ideas in Computer Science, head TA for 15-151 Concepts of Mathematics (Spring and Fall, respectively)Teach 20-student recitation twice per week, host office hours, and lead review sessionsDesign/Lead staff meetings, coordinate TA-Professor interactions, delegate TA responsibilities for ConceptsHelp design exams/update problem sets, update course structure for Concepts	
Fiat Chrysler Automobiles Data Science Intern	Remote May 2020 to Aug. 2020
<ul style="list-style-type: none">Tasked to increase accuracy for absentee worker prediction at all plants (absentee predictions inform numbers for necessary temp workers)Improved performance by using Random Forests, cross referencing crew attendance across plantsQueried data from PostgreSQL database and used Pandas library to store query resultsOptimized the HR absentee prediction model in Python resulting in a 2% increase in accuracy	

Projects

Semi Supervised Learning Research, Carnegie Mellon University	Fall 2021 to Current
<ul style="list-style-type: none">Currently working on research in scalable graph-based Semi-Supervised Machine Learning project with PHD student under Dr. Nina BalcanUsing Python and SciPy, finding Harmonic Objectives, leveraging K-Nearest Neighbor graphs and iterative solvers for speedupevaluating on MNIST, CIFAR, and common NLP datasets such as 20-newsgrps dataset with Sklern using Bag of Words approachAchieved same accuracy, 100x speedup on large graphs with respect to closed form solutions with matrix inversesUsed Image Embeddings from layer 2 of Resnet-18 adapted for CIFAR in order to clean up more difficult image classification problem before iterating	
Battlecode (codebase)	Jan. 2022
<ul style="list-style-type: none">Worked on team of 4, coding an AI bot in Java to compete in a tournament run every year by MITLeveraged distributed communication algorithms and pathfinding to increase bot's effectivenessImplemented bit packing methods, data structures such as Priority Queues and Stacks, and K-Means Clustering to improve performancePlaced top 10 out of 250 teams internationally(2021, 2022), 1st out of all first-time teams(2021)	
TartanHacks: Spot your Mood! (codebase)	Feb. 2021
<ul style="list-style-type: none">Created an add on for Spotify using Python and Flask on team of 4 to track mood of users listening over time, as well as mood of specific playlistsDeveloped Vector Embeddings for mood based on Spotify API metadata and sentiment anaylsisUsed Euclidean Distance in the Embedding Space to execute recommendation decisionsFunctionality for both song and playlist generation based on mood factors and specific genres that users likedDeveloped graphs of mood over time based on users past listening	
TartanHacks: WalkSafe! (codebase)	Feb. 2020
<ul style="list-style-type: none">Developed a Python program on team of 4 that calculates safe and efficient walking paths at night in New York CityCreated a weighted graph from crime and street data and implemented an A* Pathfinding algorithm to generate optimal pathsIntegrated Open Street Map API and fetched data from NYPD crime database REST endpoint	